



Microvision, Inc.
19910 North Creek Parkway
PO Box 3008
Bothell, WA 98011
425-415-6620
425-481-1625 facsimile

Attorney Docket No.: MVIS 98-09 C3

Mail Stop Amendment
Director for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

**POST-FILING TRANSMITTAL
AND FEE TRANSMITTAL**

Inventor: Mark P. Helsel et al.
For: **FREQUENCY TUNABLE RESONANT SCANNER WITH AUXILIARY ARMS**
Appl. No.: 10/647,394
Filing Date: August 22, 2003

ENCLOSURES

- ☒ An Amendment / A response
☐ Sheets of Drawings (Figs. 1-).
☐ A Declaration under 37 C.F.R. § 1.132 / A Supplemental Declaration.
☒ A Terminal Disclaimer.
☒ A Petition for a one-month Extension of Time.
☐ An Information Disclosure Statement, Form PTO-1449, and Copies of Citations.
☐ A Petition to the Director.
☐ A Notice of Appeal / Appeal Brief.

SMALL ENTITY FEE CALCULATION

Claims:

	Number Remaining	Number Paid For	=	Extra	x	Surcharge	=	
Total Claims	20	20	=	0	x	\$9	=	\$0
Independent Claims	3	3	=	0	x	\$42	=	\$0
Multiple Dependent Claims	0			0				\$0
Terminal Disclaimer								\$110
Petition for 1-Month Extension of Time								\$55
Information Disclosure Statement								\$0
Petition to Director								\$

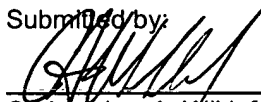
Total Fee Enclosed **\$165**

Repln. Ref: 10/22/2004 FFANAI2 0018040400
DAH:500284 Name/Number:10647394
FC: 9204 \$55.00 CR

METHOD OF PAYMENT

- ☒ Payment enclosed ☒ Check ☐ Money Order ☐ Other
☒ The Director is hereby authorized to
☐ Charge indicated fees and credit any over payments to Deposit Account No. _____
☒ Charge any additional fees required under 37 C.F.R. §§ 1.16 and 1.17 to Deposit Account
No. 500284.

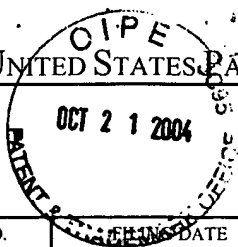
Submitted by:


Christopher A. Wiklof
Reg. No. 43,990

10/18/2004
Date



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/647,394	08/22/2003	Mark P. Helsel	MVIS 98-09C3	3672

7590

06/18/2004

Clarence T. Tegreene, Esq.
Microvision, Inc.
19910 North Creek Parkway
PO Box 3008
Bothell, WA 98011

EXAMINER

SPECTOR, DAVID N

ART UNIT

PAPER NUMBER

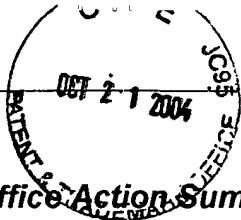
2873

DATE MAILED: 06/18/2004

Patent Log ✓
Docket ✓

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary



Application No.

10/647,394

Applicant(s)

HELSEL ET AL.

Examiner

David N. Spector

Art Unit

2873

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 August 2003 and 04 December 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 34-53 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 34, 39, 40, 50 and 51 is/are rejected.
- 7) ☐ Claim(s) 35-38, 41-49, and 52-53 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>0803</u> . | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Double Patenting Rejection

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Omum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969). A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b). Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. **Claims 34, 39, 40, 50 and 51 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 3, 4, 5, 6, and 7 of U.S. Patent No. 6,654,158 (hereinafter '158).** Although the conflicting claims are not identical, they are not patentably distinct from each other for the following reasons.

(a) In regard to claim 34 Claims 1, 4, and 5 of the '158 patent recite a microelectromechanical scanner, comprising: a substrate (*e.g. the "central plate" recited in the second line of claim 1 of the '158 patent is subsequently identified as a "substrate" in the second line of claim 4 therein*); an oscillatory body (*e.g. in the form of a mirror*) carried by the substrate and coupled to the substrate for periodic movement along a movement path by a set of primary arms (*e.g. in the form of a torsional member extending from each end of said substrate as recited in the body of claim 4*); an actuator coupled to the oscillatory body and configured to drive the oscillatory body along the movement path (*e.g. in the form of an actuator positioned to provide motive force for the central plate, as recited in the second and third lines of claim 5*); and at least one mass formed on the oscillatory body in an asymmetric distribution about a centerline of the oscillatory body, the at least one mass being formed to create a periodic movement component orthogonal to the periodic movement path defined by the set of primary arms (*e.g. as recited in*

the last seven lines of claim 5 of the '158 patent). Claim 34 of the instant application is therefore unpatentable over claims 1, 4, and 5 of the '158 patent.

(b) In regard to claim 39 Claim 3 of the '158 patent recite a microelectromechanical scanner according to claim 34 from which claim 39 depends; wherein the periodic movement component has twice the resonant frequency of the periodic movement along the movement path defined by the primary arms. Claim 39 of the instant application is therefore unpatentable over claims 1, 4, and 5 of the '158 patent.

(c) In regard to claim 40 Claims 1, 4, and 5 of the '158 patent recite a microelectromechanical scanner, comprising: a substrate(e.g. the "central plate" recited in the second line of claim 1 of the '158 patent is subsequently identified as a "substrate" in the second line of claim 4 therein); an oscillatory body (e.g. in the form of a mirror) carried by the substrate and coupled to the substrate for periodic movement along a primary periodic movement path by a set of primary arms (e.g. in the form of a torsional member extending from each end of said substrate as recited in the body of claim 4); an actuator coupled to the oscillatory body and configured to drive the oscillatory body along the primary periodic movement path (e.g. in the form of an actuator positioned to provide motive force for the central plate, as recited in the second and third lines of claim 5); and an array of mass locations on the oscillatory body, the mass locations comprising a pre-determined set of locations for placement of one or more masses for inducement of a secondary periodic movement orthogonal to the primary periodic movement path (e.g. as recited in the last seven lines of claim 5 of the '158 patent). Claim 34 of the instant application is therefore unpatentable over claims 1, 4, and 5 of the '158 patent. Claim 40 of the instant application is therefore unpatentable over claims 1, 4, and 5 of the '158 patent.

(d) In regard to claim 50 Claims 1, 4, 5 and 7 of the '158 patent recites a optical scanning apparatus (e.g. in the form of a beam scanning apparatus as recited in claim 5 of the '158 patent), comprising a beam source (e.g. a light source); and a beam director aligned to direct a periodically scanned beam across a two-dimensional field-of-view (e.g. scanning a light beam through a raster pattern having a line rate and a refresh rate as recited in claim 7 of the '158 patent); the beam director comprising a substrate (e.g. the "central plate" recited in the second line of claim 1 of the '158 patent is subsequently identified as a "substrate" in the second line of claim 4 therein); an oscillatory body (e.g. in the form of a mirror) having an asymmetric mass distribution carried by the substrate and coupled to the substrate for movement about a fast scan axis (e.g. the line rate axis) and an orthogonal slow scan axis (e.g. the refresh rate axis);

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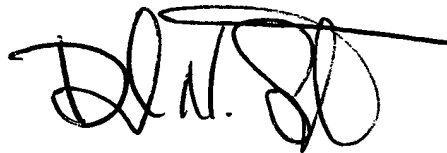
and an actuator coupled to the oscillatory body and configured to drive the oscillatory body along the fast scan movement path periodically and slow scan movement path substantially linearly (e.g. *in the form of an actuator positioned to provide motive force for the central plate, as recited in the second and third lines of claim 5*); the asymmetric mass distribution of the oscillatory body being formed to create a periodic movement component orthogonal to the periodic fast scan movement path. (e.g. *as recited in the last seven lines of claim 5 of the '158 patent*). Claim 50 of the instant application is therefore unpatentable over claims 1, 4, 5, and 7 of the '158 patent.

(e) In regard to claim 51 Claims 1, 4, 5 and 7 of the '158 patent recite a beam scanning apparatus according to claim 50 from which claim 51 depends; wherein: the asymmetric mass distribution of the oscillatory body is selected to create a periodic movement component having substantially twice the frequency of the orthogonal fast scan movement (*as recited in claim 6 of the '158 patent*). Claim 51 of the instant application is therefore unpatentable over claims 1, 4, 5, 6, and 7 of the '158 patent.

Other Remarks/Information

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David N. Spector whose telephone number is (571) 272-2338. The examiner can normally be reached at this number Monday through Friday between 6:00 AM and 2:30 PM. The fax number for the organization where this application is assigned is (703) 872-9306.

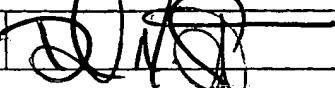
June 16, 2004

A handwritten signature in black ink, appearing to read 'D.N. Spector', with a long horizontal stroke extending to the right.

David N. Spector
PRIMARY EXAMINER

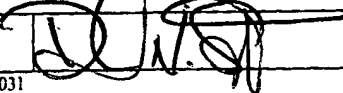
INFORMATION DISCLOSURE STATEMENT BY APPLICANTS		Application Number	To Be Assigned
		Filing Date	August 22, 2003
		First Named Inventor	Mark P. Helsel
		Group Art Unit	2873
		Examiner Name	David N. Spector
Page 1 of 2		Attorney Docket Number	MVIS 98-09 C3
U.S. PATENT DOCUMENTS			
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D/S	5,694,237	Charles D. Melville	12/02/1997
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D/S	2000214407	EPO-Patent Abstracts of Japan	08/04/2000	N/A
D/S	WO 98/12660	PCT	03/26/1998	N/A
D/S	WO 95/34014	PCT	12/14/1995	N/A
D/S	2 175 705 A	U.K.	12/03/1986	N/A
OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS				
Examiner Initials	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.			
D/S	BALTES, HENRY, et al., The Electronic Nose in Lilliput, IEEE Spectrum, September 1998, pp. 35-38			
D/S	ASADA, N., et al., Silicon Micromachined Two-Dimensional Galvano Optical Scanner, IEEE Transactions on Magnetics, Vol. 30, No. 6, November 1994, pp. 4647-4649.			
D/S	KIANG, MENG-HSIUNG, et al., Micromachined Microscanners for Optical Scanning, SPIE Vol. 3008, pp. 82-90			
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Examiner Signature		Date Considered	6/16/2004
OMB 0651-0031			

INFORMATION DISCLOSURE STATEMENT BY APPLICANTS		Application Number	To Be Assigned
		Filing Date	August 22, 2003
		First Named Inventor	Mark P. Helsel
		Group Art Unit	2873
		Examiner Name	David N. Spector
Page 2 of 2		Attorney Docket Number	MVIS 98-09 C3
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D/S	2002/0050956	Gerhard, et al.	05/02/2002

FOREIGN PATENT DOCUMENTS				
Examiner Initials	Document Number	Country	Date of Publication (MM-DD-YYY)	English Translation Provided?
OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS				
Examiner Initials	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.			

Examiner Signature		Date Considered	6/16/2004
OMB 0651-0031			

Notice of References Cited

Application/Control No.

10/647,394

Applicant(s)/Patent Under
Reexamination
HELSEL ET AL.

Examiner

David N. Spector

Art Unit

2873

Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
	A	US-6,654,158 B2	11-2003	Helsel et al.	359/292
	B	US-			
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.